5: Schwimmer E-4,5 (1966-1967) 1973
OJ23 Orokaiva OJ23
Mountain Orokaiva

241 wet season throughout the Northern Territory. On the Mount Lamington
[132] foothills, the dry season is comparatively short and somewhat undependable, but it is usually over by the beginning of September. Here cultivators must be sure to have enough dry weather for a successful burn prior to planting. 'A significant proportion of the mineral energy upon which swidden cultivates draw for their growth comes from the ash remains of the fired forest, so that the completeness with which a plot is burnt is a crucial factor in determining its yield, a fact of which probably all swidden cultivators are aware.' (Geertz 1966: 22–3) Furthermore, it is unwise to leave the burn until too late in the dry season, for if the soil has dried out (which it does quickly in the tropics), taro plants develop few shoots, so that the gardener may be short of shoots for planting out. Hence, I was told, a very substantial amount of clearing and planting needs to be done between June and August. There is thus a flush of produce nine or ten months later, i.e. from April to June. The same rhythm also applies in drier areas, nearer the coast, such as Inonda, because there the danger of the soil drying out is even greater and the dry season much longer. When we find that the principal Orokaiva feasting season is from April to June, we can see that this is ecologically determined, as it is then that taro is most plentiful.[5]

243 While most subsidiary crops are grown in the taro garden, it is a fixed rule
476 that taro and yam should never be grown together. While taro is usually grown by individual households, yams are planted and harvested by co-operative groups, around the same time as the main taro planting and harvest, but yams are usually stored for several months until the next dry season. Yam houses are built in yam gardens and used for the storage of no other crop.

245 *Arboriculture.* Although the Orokaiva traditionally planted coconut, betel-
249 nut and a few other trees in gardens, villages and in the bush, their arboriculture
177 used to be rudimentary in comparison to their precise and detailed attention to
473 tubers, especially taro. The Australian authorities had hardly established themselves in Papua before they began to press the population into extensive arboriculture that would yield a cash income. One of the early 'native regulations' (No. 121, passed in 1903), compelled all Papuan villages to grow a stipulated number of rubber trees. Three such rubber stands were established at Sivepe, ranging from one half to three acres in area, all village men supposedly sharing in the work. Rimoldi (1966: 86–93), who describes in detail the vicissitudes of exploitation of these trees, shows how ill-adapted communal rubber stands are to a society lacking institutions for the distribution of corporate assets to its members. Nonetheless, a further stand was established, this time quite voluntarily, in 1964. They are known as the 'company trees', have not yielded any cash, and will be discussed in detail below as the land transactions involved cast light on the ideology of contemporary Orokaiva co-operative movements.

245 'Communal' village plantations for coffee were established in the Northern
473 District under the same regulations as applied to rubber, but all producing trees in the villages I visited had been grown on quasi-individual holdings. First plantings were around 1955. On a rough estimate I would say that the number of trees in Sivepe and Hohorita, two villages on the foothills, were 3,500 and 15,000, while Inonda, on alluvial plains, had 800. Coffee is one crop that

5: Schwimmer E-4,5 (1966-1967) 1973
OJ23 Orokaiva OJ23
Mountain Orokaiva

We shall need to consider exchange from two points of view: first, as in the preceding chapters, we may consider it phenomenologically, from the viewpoint of the transactional polarity of the exchange partners; secondly, we may consider it from the viewpoint of symbolic thought, as something like the dialogue between *Yin* and *Yang*, as the product of Orokaiva intelligence reflecting upon affective experience.[1] It is this second approach which will be appropriate for much of our discussion about the remarkable Orokaiva myth of the coconut and the betelnut.

2. *The Minor Foods: Objects of Mediation and Paired Symbols*

Although this chapter will deal mainly with the coconut and betelnut, it will be useful first to set this couple into a wider ecological and cultural context. Coconut and betelnut have been chosen for detailed treatment out of a large number of minor foods of the Orokaiva, many of which have their special importance as objects of mediation. An interesting aspect of these minor foods is that Orokaiva symbolic thought arranges them in couples to which a male/female opposition is usually ascribed. Very often these plant couples are grown in close association with one another and it is claimed that they will not prosper unless they are planted together and that, in their wild state, they are also found together. The symbolic association of these pairs of plants may be based on any of a number of shared characteristics: the similar outward appearance of the fruit, a coincidence in the time of fruiting, a similarity in culinary use, in taste, in supposed physiological effects of the fruit when eaten. Sometimes the pair of plants are linked in ritual use and in a common myth.

Among examples of this pairing tendency that may be quoted are two varieties of breadfruit, called *oga* and *eumba*; two condiments important in initiation ritual: the *puga* nut and the salt vine *hoe*; the yam and a red fruit called *hamesi*. The coconut (*vu*) and betelnut or *areca* (*su*) are similarly a pair of subsidiary foods between which there are important points of resemblance which led to their being paired together, and important points of difference which led one of them to be classified as male and the other as female.

Coconut and betelnut are planted together in villages and also in gardens. Both nuts are eaten raw, young coconuts for refreshment, *areca* for relaxation, and both are consumed between meals. Both nuts grow on palms. Both foods have notable (though different) biochemical effects on those who eat them. Both foods are standard gifts made to strangers who visit a village, a coconut being offered as refreshment immediately upon arrival while betelnut is chewed (along with *hingi* pepper and lime) during the conversation. The two nuts are also associated in ritual use. At mortuary feasts, the most important gift objects are large quantities of betelnuts and coconuts harvested from the palms of the deceased, while dry coconut and betelnut are strewn on graves by affines of the deceased. Finally, coconut and betelnut are associated in an important myth which I intend to discuss in detail.

In studying plant couples such as coconut and betelnut two aspects of exchange need to be considered: first, exchanges between persons in which the food products appear as objects of mediation and secondly, mythical exchanges between the male and female plant, where the two plants appear as exchange

Native plantations as the mainstay of agricultural policy (1918 - 40)

657 179 After the 1914-18 war, a shortage of labour, low produce prices and high shipping costs made it very difficult to attract European settlers to Papua. The emphasis of agricultural policy was therefore shifted and indigenous agriculture was seen as the only hope for the future. "If we cannot attract capital to develop the Territory", the Lieutenant-Governor wrote, "we must develop it without capital - that is, by native agriculture" (P.A.R. 1921-2 : 6). He saw two particular advantages in native agriculture over European; it did not require hired labour and it did not require large amounts of capital. It was clear the country would not be developed by the few European plantations then in operation (with a planted area of about 61,000 acres in 1923) and for the next decade at least Murray gave great emphasis to the development of "native plantations".

245 249 657 [466] In the Northern District[1] there had been little planting under the regulations since the turn of the century, but with the outbreak of the first world war the Resident Magistrate gave priority to expanding output by the compulsory planting of coconut, rubber and citrus trees, and 10,000 coconut and other economic trees were planted in 1914-15 under the direct supervision of patrol officers (P.A.R. 1914-15 : 49). By 1921 there were 46,404 coconut trees in the Orokaiva area but over half (25,642) had been planted within the previous five years. Almost all the rubber trees had been planted in the previous five years (P.A.R. 1920-1 : 48-50).

657 241 Although the regulations did not prescribe that planting was to be either by individuals or groups, in all the post 1914 instances we are aware of in the Orokaiva area, each village or cluster of villages was in fact directed to plant as a

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(1) The Orokaiva area was included in the Buna and Kokoda Districts of the Northern Division until 1909, then in the Kumusi Division until 1920, and in the Northern Division (later termed the Northern District) since 1920.

group.(1) Group planting seems to have been the general pattern in other parts of the Territory too. In the Western District in particular, the Resident Magistrate initiated schemes for cash crop plantations being owned and operated by each village as a whole. Profits were to be used for projects which would be of benefit to the village community (P.A.R. 1913-14:12). About fifty such plantations were established under the scheme.

During this post-war drive (and probably in 1920) a government officer assembled the people of the nine villages(2) of the northern branch of the Asigi tribe and instructed them to choose a site and plant an area of coconuts for the nine villages as a whole.(3)

A central site was chosen near Ongoho on land belonging to the Akute'undi sub-clan (most of the members of which lived in Ongoho village), and about 500 coconuts were planted as a community project by the men of the nine villages.(4) They were to be used exclusively for copra making (there were ample coconut trees in the villages for domestic use) and work and profits were to be shared equally among the able-bodied men. Small plots of rubber and citrus trees had been established at Ongoho under the same scheme a year or two earlier. The citrus was intended to be used primarily as a latex coagulant for the rubber, and only secondarily as a cash crop.

(1) In some instances in the coastal villages of the Northern District each individual planted his own trees, but all villagers planted in one "village" block on the land of one man or of one descent group.

(2) Ongoho, Hongoesta, Iviusu, Sowai, Weki, Ondahari, Oere, Girigirita and Heherita. Sowai and Weki were later abandoned and today their populations live together at a new village named Sotokoiari. Likewise Girigirita and Heherita have amalgamated and moved to a new site. The new village is called Girigirita.

(3) Data in this section of the report was collected by interview only in the villages concerned during April-May 1963.

(4) The annual reports show that in 1921 there were 518 coconut trees over five years old and 1,287 under five years old in the Asigi area. The nine villages listed above comprise about half of the total Asigi population. The 518 mature trees were probably those planted in the villages. Trees in the community block which did not survive were not replaced, and as the ground has not been cleared since the second world war, many have died. There were 198 trees still standing in 1963.

435 245 At the time of planting, copra prices were relatively high (averaging £32.10.0 per ton f.o.b. in 1920) but a fall in overseas prices and the introduction of the Navigation Act in 1921 (which resulted in exports to Europe having to go to Australia first) made copra production uneconomic.(1) [258] [249] No copra was ever made from the community coconut grove at Ongoho, nor were the small stands of rubber and citrus fruits ever exploited. 245 425 After the war the Akute'undi, as landowners, claimed the trees as their own on the ground that the community project had been abandoned long before. One Akute'undi man claims and uses about half of the trees. His father planted food crops on that part of the land before the coconuts were planted and he now plants vegetables between the coconuts. Each of the resident Akute'undi men claims the right to the produce of several particular trees on the other half. Three trees are set aside for the medical assistant at the local Aid Post, as he is a stranger. Most members of the other sub-clans question the right of the Akute'undi to the exclusive use of the coconuts as [578] all groups participated in the planting. Occasionally some member of the other sub-clans asserts himself and collects nuts from the "community plantation" and the dispute which is normally quiescent flares up again.

245 258 249 Enquiries in fifteen other Orokaiva areas where coconuts were planted under the regulations show that most were never used for copra-making, though a few of those on the coast were so used from time to time. Not one plantation was systematically exploited. The rubber was not tapped as there was no market for the latex, and most plantations were not cleared after planting.(2) The citrus fruits were never exploited commercially, again because there was no market.

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(1) By 1923 avenge f.o.b. price per ton had fallen to £19.0.0 and by 1930 to £11.10.0. By 1934 the price was £8.0.0 per ton in London or about £4.10.0 f.o.b. Papua, though Papuans had long since stopped selling. The above prices were those paid to exporting traders, and net prices paid to indigenous producers were probably not much more than half those mentioned above.

(2) After 1941 other arrangements were made for use of the rubber plantations. For details see Rimoldi 1964.

ordinance for the appointment of officers as "controllers of native plantations". The first of these, Mr. G.H. Murray, was appointed in 1920 to serve the whole Territory (P.A.R. 1920-1 : 28). It was not until 1923 that a permanent officer, Mr. A.T. Dawson, was posted to the Northern District. Neither officer had been trained in agriculture. 657 241

The people of the Northern District were reported to be receptive to the idea of having their own plantations and "practically no compulsion" was applied in getting initial agreement to the principle (P.A.R. 1923-4 : 16).

Planting began in 1923 and by 1925 fourteen of the plantations had been planted. Owing to a delay in obtaining cocoa seedlings from Java, 30 acres of cotton were planted in 1925 (P.A.R. 1924-5 : 27). The cotton experiment was a failure and was not repeated. By 1926 there were only 50 acres of cocoa, 10 acres of coffee and 6 acres of oil palm in the district.(1) Eleven of the plantations were of cocoa, one of coffee and two of oil palm. A little rice was also tried. The cocoa, oil palm and rice were soon abandoned by both government and the people owing to a drop in prices, and only the coffee was persevered with. 248 245 [249] [243]

In 1926 or 1927, a further 116 acres of land were cleared for coffee under government instructions, but the rate of expansion declined markedly thereafter. By 1936 there were 18 plantations totalling 242 acres under coffee in the Orokaiva area. 189 acres were then in bearing and the rest were expected to begin bearing by 1938. Plantings ranged in area from 4 to 30 acres. 245

Every able-bodied man between the ages of 16 and 36 years who lived within five miles of a plantation (except those employed by government, missions or European plantations) was required, by regulations under the ordinance, to work 60 245 466 [651]

(1) This figure included some private plantings in addition to those under the ordinance - P.A.R. 1926-7 : 10. Coffee seed was supplied from the government station at Higaturu.

likely to emerge. Problems of work organization and income distribution may nevertheless arise.(1)

Problems of work organization: The communal plantations almost all involved several unrelated descent groups which traditionally recognized no single leader. The Orokaiva did occasionally form larger ad hoc groups for warfare and sometimes for forest clearing, but these were temporary associations directed to the achievement of a short term goal. This of itself does not preclude the formation of new and larger groupings with unitary leadership provided there is either a strong desire for group action (and the necessary institutions to direct it), or strong external sanctions to enforce it.

The earliest communal plantings of coconuts and rubber by the Orokaiva were carried out under instructions from officials and sufficient pressure was exerted to ensure compliance. The pressure was not, however, maintained and the coconut and rubber trees were little cared for after planting. Nor was harvesting for market enforced. Prices were low; the coconuts were seldom made into copra and the rubber was never tapped until the time of the war.(2)

The working of the coffee planted under the Native Plantations Ordinance was strictly supervised. A village constable was in charge of each local group, the European officer in charge patrolled the area regularly, and defaulters were severely punished. The communities regarded the whole operation as one of oppression by the government. During the period that government sanctions were reduced and finally withdrawn, coffee prices were high (more than ten times higher than immediately pre-war). Many people therefore wished to continue working the coffee gardens, but the community was not traditionally equipped with adequate sanctions to ensure that individuals did their share of work, and the law specifically forbade the exercise of sanctions by any indigenous individual or group.

(1) Since writing this we have been informed of a small (3 acre) communal tobacco-growing project which began at Soroputa in 1948 on the land of a single descent group. It was reported to have functioned efficiently until it was destroyed by the Mt. Lamington eruption in 1951.

(2) For details of the war-time rubber-tapping scheme see Rimoldi, 1964.

Hamburata Communal Garden

Before the war there were four cash crops planted at Hamburata: rice, coconut, palm oil and coffee. The rice was planted on Atupa clan's land. Five villages took part in the work .... There were 29 clans .... The villagers worked for the rice for one year without any pay. The rice was harvested in bags .... The people brought the bags of rice to Buna but the government did not pay them for the work they did on the rice. They worked for the rice for one year only .... 241 [465] [243]

The second crop planted at Hamburata was coconut. The coconut was planted on land of Atupa clan .... The coconut plants were still young when the villagers were told by the government to plant another crop. The crop was palm oil .... The palms were planted on Haumepa clan's land. The villagers planted the oil palm and looked after them for one year and the government told the people to plant another crop. The other crop was coffee. [249]

The coffee was planted on Seharipa clan's land .... They worked every day .... They got pay once in every year. The government officers used to come to the village. The government used to send police to the village to look after the people to work on the coffee .... When the war was near the government did not send the police to the village for this work. After that all the people in the village stopped work .... After the war they did not work on the plantation until the Mt Lamington eruption. The coffee was near the Ambogo river so the river was flooded and washed the plantation away .... 245 [625] [133]

245 [654] plots but agricultural officers intended to launch a campaign in the district in 1963 to induce a wider use of this method which could considerably improve the present disappointing yields.

[221] There is a definite seasonality in harvesting; production in the area reaches a peak in the months of the dry season and falls off after August. Growers are careful to pick only ripe cherries. They take the cherries in a bag to the river, pulp them by trampling the bag and then wash them. The beans are placed in hollowed logs or 'boats', covered with water and fermented for about 36 hours. They are then washed and spread in the sun to dry.

The resultant parchment coffee is carried to Saiho where the Orokaiva Coffee Growers' Society has a buying centre.

435 [434] Not all receipts for sales of coffee from the sample plots had been kept but the 4 producers stated that their sales of parchment coffee had brought them a total of £11 in 1962. With the prices around 1 shilling per pound this would approximate the income expected from 500 trees bearing a little less than half a pound annually.

249 (ii) Rubber. We shall conclude our descriptive account of commercial agriculture with a historical resumé of the overall organization of the production and marketing of the rubber which for 40 or 50 years has been grown at Sivepe and throughout most of this tribal territory. This account seems worthy of inclusion here, not so much as a report on one of the very few areas in the Territory where rubber is produced from trees owned by indigenes, but as a sketch of part of a long and chequered experience of the cash economy which the mountain Orokaiva have had as primary producers.

Members of the clans now represented in Sivepe and Binduta participated in the planting of 4 small stands of rubber (Hevea brasiliensis) near their villages in the years following World War I. These plots, known as Binduta, Sarua, Korinasus and Pusahambo, ranged from less than half an acre to about 3 acres in area.

The Sivepe neighbourhood at the time was included in the Kokoda District, a part of the Kumusi Division. By 1918, 8,000 rubber plants had been distributed to villages in the district which was considered too far inland for worthwhile copra production. In 1920 the government plantation, established at Kokoda in 1908, had 12,000 rubber trees on its 125 acres, and villages in 27 subdistricts had a total of 5,000 trees planted in stands of their own. Among these were the 4 plots near Sivepe. The growth of the [245] trees was said to be vigorous. By 1921, 7,000 rubber trees and 4,900 coconuts had been planted throughout the district and by 1922 the numbers had increased to 8,134 and 6,887. In 1924

249 planting was still being encouraged. The trees planted in the district were for long the only Papuan-owned rubber plots.

249 657 These trees had been planted under Native Regulation No.121, first passed in 1903 but not enforced in this division until the first world war. The legislation states that 'it is a good thing to plant coconuts and other useful fruits and trees.... The Magistrate shall fix the number of trees or the area of land, as the case may be, that the able-bodied man of each district shall plant' (Native Regulation Ordinance 1908-30).

46 249 657 [245] We could not determine how much compulsion was involved in establishing each of these 'plantations' but in 1921 the Assistant Resident Magistrate reported that planting in the district needed more supervision than one officer could provide and in 1922 the Lieutenant-Governor said that the threat of force was necessary to ensure the success of the policy of agricultural expansion under the regulation (Territory of Papua 1921-2). A particular reason for resistance in this district may have been the official priority given to rubber whereas it was reported ' the natives prefer coconuts due to their food value' (Territory of Papua 1920-1). A person who refused to plant was liable to a fine of 5 shillings or 6 weeks' imprisonment or to 3 months' imprisonment for a second offence.

249 The people of 3 villages, Pusahambo, Euru and Asina, were directed to co-operate in the planting of one of the stands near Sivepe. After the people of Asina had declined to provide land it was agreed that the plantation should be established on a parcel already partly cleared near Pusahambo. Part of this land belongs to Timunu people and part to Jegase; and although 1 Timunu lineage sometimes assert that they also hold residual rights in the Jegase section of the land, they appear never to have questioned the rights of the members of Jegase and Seho clan branches to the trees.

The only other plantation to which any member of the sample has rights is Korinasusu. This also is on land divided between members of 2 different clans, Jegase (Bebehupa lineage) and Usohu, who disputed the exact boundary when we enquired about it, but have generally been able to agree on the rights to tap the trees.

249 657 It seems that the rubber project in the district was designed so that, from the start, the owners of the rubber should themselves handle much of the production and processing. They were encouraged to plant lime trees 'so that they can coagulate latex with lime-juice and smoke a fair sheet of rubber for market' (Territory of Papua 1920-1). However, no facilities for the manufacture or processing of latex or rubber were introduced. The people claim that after the planting regulation had been enforced, the trees

249 657 stood untouched for about 20 years. In 1944 Humphries (1944:4) reported that 'the trees grew to maturity with very little attention from the natives and today they are being tapped for the first time'.

[434] In 1941 an agreement under the Transactions with Natives Ordinance (1893-1935) was made between a European planter recently arrived in the area and the villages with rubber stands, whereby he obtained exclusive rights to tap, collect and dispose of the produce of all the trees, while from 6 per cent to 12 per cent (according to ruling market prices) of the gross sum obtained by the lessee was to be paid to the owners every 6 months; in general this meant that the owners received 1 penny to 3 pence per pound. The contract was to extend for 5 years and the lessee was to have the option of renewing it for a further period of 5 years.

The arrangement became effective in 1941 but was interrupted by the Japanese invasion of the Northern District. In 1943 A.N.G.A.U.[1] authorized the lessee to return to restart production from the trees. Mann (1954:35) says that

[433] during 1944, under the supervision of the rubber division of the Production Control Board, tapping of some 250 acres of those smallholdings was organized. During 1945 production was over one hundred thousand pounds dry rubber, indicating average yields of about four hundred pounds per acre.

249 433 311 Various estimates have been made over the last 20 years as to the size and number of the rubber stands in the area. Mann's figure of 250 acres contrasts with the lessee's estimate of 110 acres,[2] and with Humphries' assessment of about 80 acres. There were 95 stands with a total of 7,721 trees listed in the 1941 agreement but during 1943-5 a further 42 stands were added so that most of the available stands were then included in the scheme.[3] In 1951 Belshaw claimed that there were roughly 6,000 rubber trees in the 'Periho' tribal area within what was formerly the Kokoda District and another estimate about the same time put the number of trees in this wider area at 10,000. The annual report of 1959 stated that 26,000 trees 'in the Awala area' were tappable. A

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[1] The Australian New Guinea Administrative Unit.

[2] Assuming this estimate and the figure of over 100,000 pounds for 1945 production to be accurate, we must conclude that the average yields were more than twice those given by Mann.

[3] It was reported by patrol staff that 'nearly all' the rubber stands were being worked from Awala in August-September 1943.

recent agricultural census listed 55 stands with 13,700 trees in the Saiho Census Division (which coincides roughly with the 'Periho' area) and another 3,700 trees in the Sangara Census Division. However, according to the 1964 census there were 14 Saiho villages with stands, carrying 10,000 rubber trees altogether, 4,500 of them less than 6 years old and another 3,500 less than 10 years old.[1] There were also 46 individually-held plots recorded with 8,000 trees, all less than 10 years old. The total number of rubber trees on village-stands in the Saiho, Sangara, and Togahau Census Division was put at almost 26,000.

The agreement between the lessee and the villagers was modified in 2 ways after the war. When the scheme was resumed in 1943 the Administration decided that in order to facilitate the handling of money, the royalty to be paid to the owners should be changed from a percentage basis to a flat rate of a shilling twice a year per tree tapped;[2] and the royalties set aside every 12 months by the lessee were sometimes withheld by the District Office so that the people did not receive payment for more than 18 months, although the contract provided for half-yearly payments.

Until 1946 local villagers were employed by the lessee to tap their stands. A tapper would work in his own area but his task necessarily included some stands belonging to nearby villages other than his own. This caused some misunderstanding at first but the owner's suspicions were eventually allayed.

The Village Constables had been responsible for seeing that the magistrate's instructions were obeyed when the plantations were established but apparently the Village Councillor in some cases assumed control over the distribution of the income among the 'owners', who were listed in 1 schedule of the agreement, although the money was shared under the supervision of a government official. One man recalled that 1 delayed payment of £114 was made for rubber from a number of stands owned by members of his village; he claims that the money was shared by more men than those named in the agreement drawn up several years before.

The lessee believes that the stage at which contract arrangements were conducted to the best effect and greatest satisfaction of the villagers was the period 1943-6 when he arranged to employ some of them as paid tappers.[3]

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[1] These would include self-sown trees.

[2] There is no evidence to support Belshaw's assertion (1951:13) that the owners were at one time receiving a royalty of only 6 pence per tree.

[3] In September 1943 government officers reported that there was a good daily yield as the trees were in good condition.

241 177 [434] A new marketing scheme was devised after 1946. Any villagers who wished to tap their stands were provided with a tapping gouge and spout, anti-coagulate, treeseal and latex bucket by the same European planter. The tapper brought latex to the factory, was given a receipt and paid at the end of the week according to the weight of the dry rubber of the latex brought in. This system brought about a decline in tapping standards resulting in lower net cash returns for the villagers and seems to have been part of the background to their lack of enthusiasm for the lease noted by patrol staff in 1948.

433 241 In mid-1949 a report from the Popondetta District Office stated that all privately owned rubber areas were on the verge of closing down; production costs were high and market prices had fallen considerably.[1] The advent of the 'price-boom' later, caused by the Korean war, coincided with the eruption of Mt Lamington and the evacuation of the villages, and consequent cessation of production.

[435] By 1954 when attempts to organize systematic production were again resumed the market price had dropped to 5/6 d. per pound; the planter proposed to issue daily chits for latex bought and to pay cash at the end of every week. He offered the villagers, and the Administration agreed to, a price of a shilling per pound dry rubber content for all grades of rubber accepted. A system was organised whereby he provided for the transportation of latex by road from collecting points.[2] He arranged for the tapping of alternate 'sections' every 4 to 5 weeks; the time interval was dependant upon the density of the latex offered. Kongohambo was the collecting point for one 'section' consisting of stands between Kendata and Binduta; Koropata was the collecting point for another section. Only 70 villages were still supplying latex, mainly because of the accessibility. A report on native agriculture in January 1956 noted that villagers had sold 3,600 lb. (dry weight) of rubber for £180 in the previous 6 months. This was produced from only 10 stands 'near Awala' and it was felt that other existing stands would probably not be brought into production until roads were improved. By July 1958 the number of stands had not increased but 6,000 lb. (dry weight) of rubber was produced and sold for £300 in 5 months.

[435] In 1958 the villagers ceased to sell latex and started producing coagulum because the planter ceased to provide transport: the

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1 The report seems inaccurate where it says that the fall in price led the lessee to terminate production. In fact production continued.

2 Some villagers are under the impression that the price they were paid for their latex was lower when it was collected by the planter.

replacement of his vehicle being necessary but uneconomic. By 1958 independent production from his own plantation was increasing and, despite periodic renewal of enthusiasm for rubber,[1] the number of village tapping stands had dwindled,[2] due partly, in the planter's view, to the movement of increasing numbers of able men from their villages to take paid employment. Already, in 1955, it had been noted that in the areas near Awala and Sangara there was a serious shortage of manpower for work in the villages due to the absence of men employed as wage-earners.

In 1958 the people still interested in tapping adopted the planter's plan that, instead of selling latex at 1 shilling per pound dry weight of rubber as before, they should coagulate their latex themselves and carry it to the factory for sale at 6 pence per pound of coagulum. However if members of a distant village had a lot of coagulum for sale, they might still ask the planter to send a vehicle to collect it without charge.

Bi-annual 'reports on native agriculture' put production from village stands for the year ending 30 June 1959 at 7,000 lb. (dry weight) and the price at 1 shilling per pound. In November of the same year it was estimated that rubber was produced from about 50 acres of village stands. By December another 2,750 lb. had been produced and the European planter suggested that declining production was due to the attraction of labour to the new Sangara European plantations and to heavy demands on villagers' time made by Administration departments and the mission. Coffee and cocoa planting was said to be increasing at the expense of interest in tapping rubber. In the first 6 months of 1960, however, 4,700 lb. (dry weight) was produced; by mid-1964 interest had increased further[3] and coagulum with an estimated dry rubber content of 1,500 lb. per year was being produced. In 1962 the price offered by the planter for coagulum had fallen from 6 pence to 5½ pence per pound.

It is not clear whether the individuals who offered themselves as tappers after 1946 had been conceded this or any other right by the rest of the villagers. Responsibility for distributing

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[1] In the first 6 months of 1955 production from 7 plots of rubber 'in the Sasembata area' rose by 60 per cent to 8,000 lb. dry weight (DS-29-853).

[2] The planter puts the number of villages involved at this time at about 30. The number participating at present is still about the same.

[3] Interest was aroused by the Ombisusu rubber project at this time (see p.102).

249 the money from latex sales fell this time to the tappers. Either because tappers, village officials and 'owners' had not reached agreement on a method of sharing the money or because they expected that any distribution needed to be supervised as before, tappers from some villages asked the planter to advise them on the distribution of the income. On one occasion many villagers retained their income pending the planter's return after an absence of 18 months (during which time the rate of latex-buying fell to a very low level). The cases where arbitration was sought often involved £20 or £30 and sometimes £80; in most cases an agreement was reached to share the proceeds equally between the tapper and the owners, who in turn took equal shares. One sanction confronting a number of tappers who were reluctant to divide the money was the prospect that the latex they produced would not be bought if they failed to co-operate.

[625] When the new village of Sivepe was established after the eruption the Village Constable who had worked on rubber estates at Sogeri in the Central District before the war organized the resumption of work on the Pusahambo stand and taught some of the younger men the rudiments of tapping. A roster system which is still in operation was introduced at about that time. Except for residents not descended from the original planters and of 2 former residents of Binduta, who continue to share the income from the Korinasusu stand with Binduta tappers,[1] each villager in Sivepe with any knowledge of tapping is given exclusive rights to the produce from the Pusahambo stand for 1 or 2 months.

No one has power to direct the long-term operation of the scheme and there are no formal arrangements governing the exact period for which each man may tap the trees or determining the sequence of tappers more than 2 or 3 months ahead. Periodic discussion seems to ensure that each tapper has satisfactory access to the trees.

The present system is not conducive to the adoption of measures for field maintenance of the rubber stand or for the preservation of tapping panels. Each man works to produce as much as possible in a short time. After that he has no further interest in the stand for perhaps 18 months when he resumes tapping. Accordingly nobody is inclined to accept responsibility for the maintenance of the stand.

Few tappers work systematically; many trees on the periphery of the stand are bypassed for long periods while those towards the

[1] Like many other stands in the subdistrict Korinasusu has not been tapped regularly in recent years. The planter finds that production from stands still being tapped reaches the peak about the time annual council taxes are due.

249 centre may be overtapped. No attempt is made to extend the area under rubber or to replace existing trees. Self-sown seedlings are allowed to struggle under heavy shading of parent trees and surrounding bush. Crowding leads to an accumulation of trash which presents a disease hazard.

A meeting of the local council recently adopted the proposal of a European planter that he should supply labour to clean the village rubber stands in the area in return for the scrap rubber collected in the process but the villages concerned refused to assent to the agreement.

In order to produce the coagulum the Sivepe tappers pour latex into hollowed-out sections of logs on the site of the stand and leave it to undergo natural coagulation but some other villages coagulate latex in the buckets they had received from the European planter. The blocks obtained in this way are washed in the river before being sold at the factory 3 miles away. Villagers claimed that coagulum produced from the Pusahambo stand in approximately 12 months before our survey was sold for £35, an average of £5.16.8 for each of the 6 tappers.[1] This figure was checked against records of receipts issued and indicates a yearly yield from the 2.4 acre stand at Pusahambo of 320-40 lb. per acre, despite the age of the stand and condition of the tapping panels.[2]

[435] 433

This compares with the Territory average of 400 lb. per acre which is the same as the estimated yield for the village rubber when the trees were worked for the first time and the tapping standard was good. Neighbouring European planters achieve yields of up to 800 lb. per acre with similar clonal lines and expect 2,000 lb. per acre from newly-introduced high-yielding trees. The first yields from a nearby Orokaiva smallholder's scheme in 1964 indicated a maximum yield of 500 lb. per acre with the old clonal lines.

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1 In 1964 Department of Agriculture staff reported that 1 month's tapping by a villager selling coagulum to the European might return £2 or £3, and that the tappers thought this amount too small.

2 An officer of the Department of Agriculture who inspected the area in 1962 suggested that most of the trees being tapped were self-sown.

433 The people's experience of commercial agriculture has been so confusing and the returns to be derived so problematical that we are not prepared to say that, assuming the continuation of present marketing conditions, any member of Sivepe firmly believes that cash crops would still warrant extensive investment of his time and capital. However, it is evident that they have assessed the prospects of coffee, cocoa and rubber in turn and are inclined to believe that, of the 3, rubber is the crop most likely to produce worthwhile rewards for any labour they may devote to cash crops. [249] The first individual plantings of rubber at Sivepe and neighbouring villages have taken place recently. In the past few years 1 householder in our sample has planted nearly 100 trees near Nahihita. He is employed as a rubber tapper on a nearby plantation. Another has 1 acre of cleared land intended for rubber.[1] The seedlings are taken from the low-yielding lines in the village stands. There is land available to give some scope to extension of the present areas under rubber which could be sold through the existing outlet.

However, these production increases will be limited by the fact that villagers have to be content with low-yielding seedlings while high-yielding lines are now being introduced on to local European plantations and the Department of Agriculture Nursery and by the knowledge that, quite apart from the variability in the returns for their present efforts to produce rubber, with coagulum they are limited to manufacturing a consistently low-priced product. They can make comparisons in discussions with local people employed on neighbouring plantations processing quality sheet rubber and in many cases they themselves have had first hand experience on rubber estates (see Table 10).

It is reported from various sources that the villagers to date have failed to find satisfaction in the organization of rubber production and in 1964 many were considering a plan to establish a rubber growers' co-operative on the lines of the Orokaiva Coffee Growers' Society, proposing to build a large factory of their own to meet the demands of the area now served by the European planter's factory.

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[1] Since our departure, this area has reverted to bush. Another area was cleared by the village for cash crops and it too was overgrown. Apart from various misunderstandings which again seem to have been the cause of abortive enterprise (E. Waddell: personal communication), this may indicate, among other things, that there is currently a strongly ambivalent attitude towards rubber production which requires resolution before a programme can be carried through.

A, [See Category 464, p. 82--Analyst]

245 Pods are opened under the trees and the wet beans sold to the Popondetta Cocoa Fermentary Ltd, whose buyers operate along all roads in the cocoa areas between the coast and the Kumusi River. Where it would be uneconomic for the company to buy cocoa, as among the Aiga north of the Kumusi, DASF is the buying agent. Cocoa trees produce throughout the year but sales fall off during the wet season.

249 Rubber is sold as coagulum to a local planter who provides spouts, buckets and tools for incising the bark. A halved coconut shell is commonly used for receiving the latex. Two or three hours after the tree has been tapped, the latex is transferred to wooden boxes, hollowed logs or buckets and allowed to coagulate naturally. Until the inception of the Ombisusu rubber smallholders' factory in mid-May 1964, village rubber production in the Saiho area was restricted to a radius of five miles around the only buying agency at Awala, due to the necessity of carrying the rubber on foot to the factory. Rubber trees produce throughout most of the year, although there is a 'wintering' period of three months from August to October.

245 Copra can be sun-dried but most producers build a drying shed either of local materials or of corrugated iron left after the second world war. A shed may belong to an individual or a group and the drying system also may be individual or co-operative. Several hundred nuts are needed to make copra production worthwhile.[1] The nuts are halved and the fleshy interiors placed on a rack above a low fire kept almost smoke-free by using dry wood or discarded shells. After about a week, the copra is dry enough to be bagged [435] and sold at one of the co-operative buying agencies at Killerton, Buna and Oro Bay on the coast. The price is determined by the Copra Marketing Board and varies slightly with quality.

438 (ii) Marketing. In addition to the long-distance trading of [443] subsistence produce by coastal people, the inland people are also beginning to trade meat (pig, wallaby, etc.), smoked fish, areca, lime and locally grown tobacco for cash with other villagers, either by hawking or in the markets held regularly at Popondetta and Saiho.[2] Vegetables also are sold in the markets. At Popondetta a considerable variety of fresh vegetables, fruits and meat is bought by both indigenous and expatriate residents. Most vegetables

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[433] [1] At Inonda there is an average of fifteen coconut trees per household producing an estimated 450 nuts per household per year. Assuming that a household uses one nut daily for cooking or drinking, this leaves less than 100 nuts per household for copra.

[2] See Dakeyne 1965:102-9, for a description of Popondetta market. Although sales of pigmeat in particular to villagers are increasing, the practice is deplored by the older people who have little or no cash in hand.

592 The average size of households[1] is 4.5 persons, otherwise expressed as 2.4 labour units.[2] Of the fifteen households in the sample at the beginning of the survey, only four had individual holdings of cash crops and one man started a holding during the survey (coffee in all cases). Everybody had rights of access to a communal rubber plantation which was tapped by individuals on a rota system.

464 Most household heads have worked for wages as unskilled or semi-skilled labour (plantation workers, rubber tappers, domestic servants and labourers for the Australasian Petroleum Company).
871 The highest level of education reached by any householder was standard II.[3] Standard IV is the highest level attained within the sample (including children), although one absentee completed standard VI at a government school at Kokoda.

622 Although the sample includes the local government councillor for Sivepe and the adjoining villages of Binduta and Avala, he only recently arrived in the village and exerts limited authority.[4]
[241] The village as a whole possesses no universally accepted spokesman or leader[5] and the repeated failure of communal ventures[6] may be related to this fact.

Economic holdings

433 Within the subsistence sector, a key factor in the pattern of exchanges is the fluctuating resources of particular foodstuffs in production at a given time in a given household: when an individual has no producing taro he is dependent on others, when he has excess he distributes. Significantly, at the time of the survey of

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[594] [1] For the purposes of this survey, a household is a group of people gardening, cooking, eating and budgeting together. It is basically the nuclear family, perhaps including unmarried kin or widowed or divorced parents (although these may operate as independent households). The household invariably resides under a single roof. Cases of two households living together occur and their frequency in Inonda helps explain the larger mean size of house.

[128] [2] Labour units were calculated on the following basis:

Age	5-9 years	10-14	15-19	20-44	45+
Male	0.1	0.3	0.8	1.0	0.8
Female	0.2	0.4	0.7	0.8	0.6

[3] See Appendix 1.1

[4] See Rimoldi 1966:55-6.

[554] [5] One man, adopted into Timumu clan, is asserting himself increasingly through his generosity, organising ability and industriousness.

[6] See pp.44-5 and Rimoldi 1966:84, 107-8.

A, [See Category 871, p. 307--Analyst]

231 Most households keep a few domestic animals which may enter into the network of exchanges. Piglets and chickens are frequently given to others who then become responsible for them until maturity.

Table 4:3

231 245 Sivepa: economic trees and livestock, 1964*

Item	Average	Range
Breadfruit	26	12-42 trees
Areca	18	6-40 "
Coconut	18	6-29 "
Hauga	13	6-23 "
Pandanus	12	nil-32 "
Sago	9	6-15 "
Hingi	3	1-6 "
Mango	3	nil-4 "
Orange	1	nil-4 "
Pig	2	nil-4 animals
Dog	2	nil-4 "
Cat	1	nil-3 "
Fowl	1	nil-5 "

* Seven households.

245 (c) Cash crop gardens

249 Cash crop holdings in Sivepa have been described by Rimoldi (1966:83-93). Briefly, they comprise four individual holdings of mature coffee and a communal rubber planting of 2.4 acres, established in 1920. At the time of the survey, the rubber was being exploited by three adult members of the sample, together with some other villagers, on a rotational basis.

249 245 Since Rimoldi's survey, two unsuccessful attempts to establish individual rubber plantings have been made[1] in addition to a major attempt to establish a communal cash crop garden of 3.75 acres. This latter attempt, initiated in 1963, was finally abandoned in March 1964. It arose out of the village councillor mis-interpreting a DDA officer's description of the Yega scheme[2] at a meeting of the Higaturu Local Government Council and it proved, in terms of

[1] These were motivated by the opinion that trees in the communal planting were being permanently damaged by unskilful tapping.

[2] See Dakeyne 1966b.

man-hours, to be a costly failure.[1] During February and March 1964, some 361 man-hours were spent in cleaning the garden preparatory to planting. The major task of clearing the area had been done the previous year. The immediate cause of the scheme's failure was friction between villagers over the crops to be planted in the garden - the councillor insisted on coffee, cocoa and rubber, while most of the others favoured coffee only. Regardless of this aspect, the episode illustrates some of the problems of communication between the external agencies and the indigenous people.

Preparations in the latter part of 1964 to move the village to the new site were precipitated in part by the belief that, if located near the end of the new and improved access road (the jeep road from Awala running through Sivepe having fallen into disuse during 1964), the sale of their produce would be made more easy.[2] However, because of the uncertainty surrounding the move, several households had by the end of the year stated their intention of remaining in the existing village.

The complexity of the cash cropping situation in Sivepe precludes drawing a clear distinction between cash croppers and non-cash croppers. As Table 4:4 shows, there are various forms and degrees of involvement in commercial agriculture and every household participates in some way. Distinctions drawn on the basis of individual holdings can be most misleading. For example, the head of household 15 is an active cash cropper, although he has no commercial trees of his own, whereas another man, with 77 coffee trees, did not work them at all during 1964. While older people tend merely to assist primary kin and appear to receive little direct payment, others are involved in various ways.

(d) Monetary assets

Individual holdings of money and other property reflect the use of past income and illustrate the extent of investment and changes in material culture.

The monetary assets of 11 households at the end of the survey amounted to $208.60 (see Table 4:5), 26.9 per cent ($56.10) in cash

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[1] It is assumed that communal clearing and subsequent subdivision into individual holdings had been recommended. In the Sivepe case, the councillor had apparently failed to grasp that subdivision should follow clearing. Two householders claim to have been prevented from establishing individual coffee plantings by him because of this misunderstanding.

[2] See pp.34 and 37. According to a local planter, the Army Engineers (engaged at the time on public works in the Northern District) promised to provide a weekly truck to Popondetta market if the people built a new road.

[TEXT CONTINUED ON PAGE 47]

A,[See Category 491, pp. 34-37--Analyst]

245 [442] Coffee must be carried to Awala for sale, about one hour's walk away. Since assistance is often required, marketing becomes a significant component of the total time devoted to coffee production. It is complicated by delays over the arrival of the buying vehicle at Awala, shortage of cash to make immediate payments, and [484] inadequate transport capacity; growers are periodically involved in two or three journeys for the sale of a single load of coffee. Outside the buying season no attention is given to the gardens nor are any ripe berries harvested.

249 While in theory rubber trees undergo a 'wintering' period of about three months (August to October), the communal planting is tapped on a rotational basis throughout the year by seven villagers, including three members of the sample. Table 6:4 shows a peak in activity during period III but this probably reflects the tapping order rather than other considerations and in fact two of the sample households tapped during this period. It cannot be considered as a diversion of activity from coffee to rubber since the two households in question did not exploit any coffee during the year. Marketing of rubber is less time-consuming than coffee as the factory at Awala accepts coagulum at all times.

461 During period I an additional 1.0 hour per man-week was devoted to the communal cash crop garden venture, of which 0.8 hours involved removing regrowth which had occupied the area following initial clearance in 1963.[1] In the balance of the time a few cocoa and rubber seedlings were planted and weeded.

Twenty-four of a possible 32 adults participated in the communal garden, although 68 per cent of the total time expended was provided by 11 individuals from four households. The scheme was characterised by intensive activity during week 1, when 7.3 hours per man-week were expended, falling off rapidly to complete cessation within eight weeks.[2]

464 (ii) Paid work. If the abortive communal venture is disregarded, the village residents devote as much time to paid work as to cash cropping. However, only five individuals were involved in such work, three men erecting buildings under contract to the hospital at Saiho and two young people doing medical work at Sasembata mission clinic.

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[1] This venture thus largely accounts for the increased time spent in clearing during period I. See p.81.

[2] The initial display of enthusiasm may have been influenced by the recency of the researcher's arrival in the village, when the exact nature of his relationship with the other external agencies had not yet been determined.

249 476 While efforts have been and continue to be made to organise communal cash cropping, based initially on the expatriate assumption that voluntary co-operative effort is a feature of the culture and an instrument for increasing productivity, they largely fail. Although the communal rubber planting in Sivepe continues to be worked, this is not a reflection of good management but rather of the intrinsic hardiness of a tree which has been planted in its natural habitat, the forest, and is subject to the depredations of 461 few diseases or pests. In Sivepe, work groups in cash cropping are 184 no larger than in subsistence, although in Inonda they are substantially bigger, perhaps on account of the influential role of the entrepreneur. The point remains that work groups incorporating individuals other than members of an individual's families of procreation and orientation are not typical of subsistence production in this area, with the exception of those activities which physically require the participation of a large number of people as, for instance, sago-making.

433 In both communities the choice appears to lie between subsistence 184 production plus peripheral commercial activities on the one hand and 166 migration out in search of full-time employment on the other. In 464 Sivepe the latter course is frequently taken, not only by single men, but also by some with dependents, who remain in the village in the care of parents. With 37.8 per cent of the potential adult male labour force absent and a number of dependents staying behind, a considerable burden is placed on the remaining residents in Sivepe. Only 25 per cent are absent at Inonda and no dependents have been left in the village. Although the distinction is not manifested directly in the length of the activity week in the two villages, it probably accounts for the greater incidence of temporary absences recorded in the latter - 17 per cent of total available labour time compared with 6 per cent in Sivepe - in that the slightly higher proportion of adult males to total population makes the subsistence economy less restrictive on individual mobility.

433 While activity patterns suggest that cash-producing activities are added to the subsistence pattern with little apparent stress, the question does arise as to whether given the existing technology, socio-economic matrix and level of productivity the communities have already expanded their commercial activities to the optimum level. There is no evidence that the expansion of cash cropping and paid work has resulted in any commensurate contraction in the time devoted to non-productive activities. The data confirm Fisk's general hypothesis (1962) concerning the availability of surplus labour. Although the Orokaiva are, by any objective standards, a reasonably active people who spend little time on informal social and ceremonial activities associated with the subsistence sector, and although, perforce, activity is restricted essentially to the daylight hours, there are some 6 hours per man-day remaining apparently unutilised. At present this time is distributed between resting, eating meals and informal socialising within the village.

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Nevertheless it is incorrect to apply Salisbury's proposition (1962:216-20), that the change from a stone to steel technology in the New Guinea Highlands has resulted in a saving of two-thirds in the time allocated to specified axe-using tasks, as further evidence for labour availability. Apart from the fact that the proposition itself is not based on quantitative data and must be regarded only as a hypothesis, if, for the sake of discussion, the factor of 3 be applied to time spent in clearing, fencing and construction (the main axe-using tasks) in Sivepe and Inonda, an additional 10.8 and 11.6 hours per man-week respectively would be required for the work with a stone technology. Since 10.7 hours in Sivepe and 10.0 in Inonda are already being directed to the external sector each man-week virtually all the labour time made available as a result of this technological change is in fact being utilised.

While there is no evidence from the activity patterns to suggest any seasonal conflict in the labour requirements of cash and subsistence cropping there is, nevertheless, some inconclusive data from both villages to suggest that a substantial extension of cash-producing activities would conflict with the requirements of the subsistence sector. In Sivepe the processing of coffee - the most labour intensive of all cash cropping work - and the harvesting of rubber typically occur early in the day and so before the start of the normal daily routine, suggestive of the fact that extra time is 'made' to carry out these tasks.[1] At Inonda it appears that where a household head engages in full-time employment for more than two or three weeks the family finds difficulty in maintaining its food gardens and so meeting all its obligations.

[245] [249]

Given that the development of cash cropping bears a direct relationship to activity patterns the data suggest the basic issue to be not one of absolute availability of labour but rather of the organisation of labour and time. The hypothesis is suggested that in a primarily subsistence-oriented economy, those cash-producing activities which do not demand a significantly different and longer work routine will be preferred. The basic feature of this routine is that one activity need not be pursued to the exclusion of others and each can be interrupted at will. So the Orokaiva working day (and week) encompasses a wide range of tasks, each pursued for only a relatively short period of time. As with the Aitutaki villagers of the Cook Islands, 'commercialization has led to few appreciable innovations in the cropping system, land tenure, technology or labour' (Johnston 1967:68).

[171] [178]

The present relative adjustment of cash to subsistence cropping may only be a temporary feature of the village economy and the fact

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[1] However, a higher yield of latex is also obtained by tapping early in the day.

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Plate 13. Pulping coffee in the creek at Sivepe.

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Plate 14. Collecting latex in the communal rubber plantation at Sivepe. Most of the mature trees are badly scarred by incorrect tapping.

Chapter 2

The Ombi-Tara conversion scheme

657 423 631 Two Orokaiva villages, Ombi (also known as Ombisusu) and Tara combined in the Ombi-Tara conversion scheme which was among the first to be promoted in the Northern District under the Land (Tenure Conversion) Ordinance 1963.[1]

[621 614] Ombi and Tara contain two clans, Mumu and Kusi. The Mumu clan is concentrated in Ombi village and the Kusi in Tara. However, Ombi has three Kusi households and Tara has one Mumu.

At the time of our stay 178 people were living at Ombi-Tara. There were twenty households in Ombi, nine in Tara, and six on the converted blocks, close to the access road running between Ombi and Tara (see the conversion plan on p.12).[A]

Thirty-five of the forty-one resident adult males had applied or wished to apply for converted blocks; the remaining six were old men who said that they were too old to apply for blocks. Four of them had sons who had applied.

Cash cropping experience of the Ombi-Tara people

249 654 The Ombi-Tara people's experience with cash crops began when they planted some bush rubber seedlings after the first world war. They were encouraged by the Administration under Native Regulation No.121 (Native Regulation Ordinance 1908-30).[2] Although the trees were neglected for some years they continued to grow, demonstrating the suitability of the area for rubber (Mann 1954:35). After some time villagers began tapping the trees and selling the latex to a local planter.

383 654 In mid 1964 the Department of Agriculture suggested that the Ombi-Tara people should process their own latex with hand rollers and coagulating pans at first supplied by the Agriculture Department,

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1 On the Ombi-Tara environment see Appendix B.[B]

2 On village planting of bush rubber in what was then the Kokoda District see Rimoldi 1966:86-93.

A [See Category 102--Analyst]

B [See Category 133 pp. 49ff.--Analyst]

383 and later to be provided by the people themselves. This idea was
654 taken up by the villagers and the first bush rubber processed at Ombi-Tara was purchased by the Department of Agriculture on 5 June 1964.

[439] An Agricultural Assistant was stationed full time at Ombi-Tara and he helps to grade, weigh and bale the rubber.[1] The baled rubber is purchased monthly by an Agricultural Officer who drives to Ombi-Tara from Popondetta. It is marketed in Australia through the Papuan Rubber Pool.

249 Tapping is organised on a rotation system, with one man tapping
434 the bush rubber stand each month, producing between 70 and 200 lb of Ribbed Smoked Sheet, and earning between $12 and $34, depending of his diligence and the price of rubber.

383 In mid 1964 the villagers built a smoke house, a machine house
474 and a baling house, all of local materials, for the equipment on
[654] loan from the Department of Agriculture. The baling press was provided on permanent loan by a local planter.

[402] On 27 October 1964 an Ombi-Tara Village Savings Account was
[454] opened at a bank in Popondetta with the sum of $227.50. During the following year money was paid in at irregular intervals at an average rate of about $14 per month.

On 12 February 1965 the Ombi-Tara people paid $177.72 for their own rollers and coagulating pans which they now use for processing, leaving the Department of Agriculture free to transfer its equipment to another recently initiated scheme. Extra coagulating pans were bought for $91.20 on 16 October 1965, leaving a balance of $117.84 in the village account.

[651] No deposits were made between October 1965 and the end of January 1966 because of the need to save money to pay the Local Government Council tax ($5 per man) and the Mission jubilee contribution ($2 per householder).

243 While the bush rubber processing project appears to have been a
[797] success, almost every other attempt made by the Ombi-Tara people at planting cash crops has failed. They participated in a communal rice growing project in 1950, encouraged by the Anglican Mission, but it was a failure, as were similar projects in other parts of
245 the district. Later in the 1950s a communal cocoa plantation of
[654] some 400 trees was established with Administration encouragement. Disputes over the organisation of work and the distribution of proceeds caused the abandonment of the project shortly afterwards.[2]

[1] During our stay all rubber processed at Ombi-Tara was graded Ribbed Smoked Sheet No.2.

[2] On the communal rice and cocoa experiments in the Northern District see Crocombe 1964a:29-33.

245 Individual planting of cocoa was tried next, with twenty-one people planting between 20 and 1,300 trees each. The average [435] plantation size per person was 318 trees. Pests and later the sharp fall in world cocoa prices discouraged maintenance and most of the cocoa trees have now been abandoned.[1] Ten people have each planted between 200 and 560 coffee trees with moderate success. In view of this history of setbacks and discouragements there is added significance in the enthusiasm of the Ombi-Tara people for tenure conversion.

Origins of conversion

177 An Ombi man named Charles was instrumental in persuading the 464 people of the merits of conversion. He had attended the local mission school for two years and, after a year as a medical orderly at Saiho hospital, worked for eighteen months on a rubber plantation at Sogeri. Next he worked in Rabaul with two other Ombi men for an oil company. At the end of his eighteen months' contract the company returned him to Ombi. He had intended to return to Rabaul to take up a $24 a week job he had been offered as a taxi driver but was elected Local Government Councillor at Ombi-Tara and held that position for seven years until 1963. He has worked for eight months as a cook at the nearby Sangara ex-servicemen's plantations, and had intended to apply for one of the Papuan resettlement blocks at Sangara before he heard of the possibility 245 of establishing a tenure conversion scheme at Ombi-Tara. He planted 249 1,300 cocoa trees, 400 coffee trees and 300 bush rubber trees before conversion was introduced, and had planted 661 of the new high yielding rubber seedlings up to November 1965, well above the village average.[2] He has been employed full time since October 1965 on road maintenance work near Ombi.

242 Conversion at Ombi-Tara began with a visit by a resourceful 249 Agricultural Officer (Mr D. Birmingham) in mid 1963. Noticing Charles planting some bush rubber seedlings the officer asked whether he might not prefer to plant some of the higher yielding Malayan rubber seedlings which the Department of Agriculture would supply at low cost. Charles agreed and recommended other villagers to do likewise. The Ombi-Tara people agreed and a rubber nursery was established close to Ombi village soon afterwards by the

[TEXT CONTINUED ON PAGE 13]

[1] The Ombi-Tara people's experience with cocoa demonstrates that a sharp decrease in world commodity prices can affect progress in developing countries not only by causing earnings of foreign exchange to fall, but also by so disheartening village producers that they cease production altogether.

[2] See p.32.A

A [See Category 245--Analyst]

242 Department of Agriculture. Clonal seedlings for the nursery were
249 obtained from Malaya and from the Agriculture Department's experi-
[654] mental stations at Itikinumu and Bisianumu. Villagers can buy seedlings at 1 cent per stump.

While the seedlings were growing, several meetings were held in the two villages to discuss how the rubber should be planted. The suggestion of a communal plantation received little support, which is not surprising in view of the recent failure of the communal
[423] cocoa experiment. At these meetings the Agricultural Officer
[425] suggested that each man might plant some of the new high yielding rubber on his own land. He was supported in this by Charles and eventually the people asked for individual blocks of land. There appears to have been no opposition.

657 The history of conversion at Ombi-Tara admirably illustrates
177 Fisk's contention (1964:159) that the personality and character of the administrators, officials, missionaries and other members of
654 the advanced sector involved are often as important to the success of a planned programme of intervention in a subsistence economy as the composition of the programme itself. Although the Agricultural Officer has since left the country he is warmly remembered by the Ombi-Tara people. It is a tribute to his understanding and tact that most of the villagers consider conversion was their own idea.

The significant role played by Charles in gaining the approval of the Ombi-Tara people demonstrates the value when introducing innovations in a rural community of working through an influential member of that community. After studying the introduction of changes in techniques in a Victorian country area, Emery and Oeser concluded (1958:52-3) 'No matter how highly regarded he may be the District Agricultural Officer remains, sociologically speaking, an outsider' and has much greater effect if he works through a local leader. These findings are extremely relevant in Papua-New Guinea where the sociological gap between Agricultural Officer and farmer is far greater than in Victoria.

The new land system

657 The new land tenure arrangements were worked out by the villagers
423 and the Agricultural Officer during late 1963 and early 1964. It was decided that 800 acres of the total area claimed by the two
[311] clans should be converted into forty blocks of twenty acres (see the conversion plan on p.12). Most of the 800 acres was formerly covered with bush and appears to be of relatively uniform agricultural potential.

657 The unconverted land outside the scheme has not yet been surveyed
423 and estimates of its area vary from 2,000 to 4,500 acres. All
425 rights to land held by individuals before conversion have been
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Allocation of blocks

657 The principles applied by the Ombi-Tara people in the allocation
423 of blocks are not clear, but it appears that men tried to get blocks
425 on land in which they formerly held rights. It seems that no single person controlled the allocation of blocks but that each person claimed the block he desired. We were told that two people claiming a single block settled the problem themselves without reference to a third party.

[614] As far as possible men claimed blocks on land recognised as belonging to their own clan; thus the three men of Kusi clan at Ombi got blocks furthest from Ombi village, about two miles away. One man of Mumu clan was given a block on Kusi land, reportedly because of a shortage of Mumu land. The Kusi clan leader said he was very happy to give him a block on his clan's land because 'we are doing a new thing and we want to be friendly with each other and not fight as we sometimes did before'.

The forty-three blockholders[1] include thirty-five men resident in Ombi and Tara villages; two men each from Ombi and Tara who were absent working for wages; a man of Mumu clan who lives in a neighbouring village but intends to move to Ombi in the near future; two Anglican Mission staff, one a Bishop due to transfer soon from Samarai to Popondetta, the other a priest stationed at Sasembata, about three hours' walk from Ombi;[2] and the Papuan Agricultural Assistant who is stationed full time at Ombi-Tara. None of the last three people has kin ties with any person at Ombi-Tara.

Clearing and planting blocks

249 Blockholders began clearing the portion of their blocks nearest
476 the access road soon after the preliminary survey of July-August
[311] 1964. For clearing the villagers worked in several groups, with
[654] each group spending one or two days on the block of each of its members. The first one year old C.C.I. (Malayan) rubber stumps from the Department of Agriculture nursery were planted in late September 1964. Planting was done by individual householders and their families, with only occasional help from kinsmen. It is traditional Orokaiva practice for clearing of bush to be undertaken by groups of kinsmen but for planting to be carried out at the level of the individual household.

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[1] 'Blockholder' is used for convenience throughout the rest of this paper to refer to the forty-three people who have applied, or intend to apply for blocks.

[2] It is not clear for what purposes these two blocks will be used.

249 Planting continued steadily till by 1 November 1965 over 13,000 seedlings had been planted. Thirty-two people had planted 300 or more seedlings and five had planted more than 600. A further 19,000 two and three months old seedlings were in the rubber nursery on 20 January 1966.

657 423 also likely to occur if any of the blockholders decides to extend his holding beyond the present boundaries.

●[249] More than 13,000 rubber trees were planted before the Land Titles Commission hearing took place. Although this caused no difficulty at Ombi-Tara, a similar occurrence at other schemes could have serious repercussions if a dispute should arise at the hearing, or if an appeal should be lodged afterwards. At the Yega scheme the villagers agreed to give a block to the Papuan Assistant Agricultural Officer who had helped them with subdivision and planting of cash crops. On the day of the Land Titles Commission hearing they withdrew this offer. A similar offer was made to the Papuan Agricultural Assistant at Ombi. By the day of the Land Titles Commission hearing he had planted more than 700 rubber seedlings on his block. Awkward consequences would have ensued if the people had decided to withdraw their offer at the hearing. The possibility of quicker registration, perhaps by the Local Government Councils, may be worth examining.

121 Pest infestations and declining soil fertility. If the introduction of individual farming on consolidated blocks leads to the cessation of the bush fallowing system of agricultural production there will be pest problems. Otherwise the holdings would have to be larger than the amount of arable land available in most areas. It was noted earlier[1] that the bush fallowing system is well suited to the production of annual food crops in tropical areas. Newton (1960:85), writing about New Britain, concluded: 'The concentration of food crops into an area cleared from rain forest has resulted in a fairly rapid multiplication of diseases and pests of colocasia, sweet potato, peanuts and sorghum.' Without fertilisers and advanced agricultural techniques soil fertility may decline in areas where there is continuous cultivation of food crops.

[452] Credit. The government decided not to offer credit facilities to participants in land tenure conversion schemes in order to prevent people assuming that tenure conversion was associated with financial assistance, but the District Commissioner of the Northern District has said that contrary to his expectations only two applicants for conversion have asked for financial assistance. One was extremely tentative and the other sought a loan of perhaps $25 (Williams 1966:7).

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2 (continued)
presumptive right to extend their holdings. We were told that in each case the two persons involved had negotiated a solution to this problem.

1 See p. 6. A
A [See Category 241--Analyst]

Appendix C

Factors associated with high cash cropping activity

121 Although this study is mainly concerned with land tenure conversion, information was also collected on factors associated with high cash cropping activity which may be of interest when compared with related findings published in earlier New Guinea Research Bulletins.

249 472 Blockholders resident at Ombi-Tara had planted an average of 348 high-yielding rubber seedlings by 1 November 1965. The nine men who had planted more than the average were compared with the remainder of the Ombi-Tara population to determine whether they differed significantly in education, non-traditional experience, age, clan, religion, number of children, sources of income, responsible positions held in the village, languages spoken, cash crops planted before conversion and attitudes as revealed in answers to the questionnaire. In most of these characteristics there was a striking similarity between the nine men and the total population. However, several differences did emerge.

While there was almost no difference between the average number of years spent in paid employment by the sample and total populations, there was a significant difference related to responsibility, skills and locality of employment. The nine above average planters included six of the eight Ombi-Tara men who had been to Port Moresby and two of the three who had been to Rabaul. Jobs held in these towns tended to be of a more skilled and responsible nature than those held by other villagers. In Port Moresby two men were employed as policemen for nine and two years, one worked for two years first as a plumber's assistant and then as a labourer, and the other three each worked for twelve months as a workshop assistant (and later as a survey assistant in Popondetta for four months), an office boy, and a labourer respectively. The two men who went to Rabaul worked as painters with an oil company for eighteen months. The man who spent nine years in Port Moresby as a policeman was also employed as a domestic servant at Kokoda for twelve months, the only Ombi-Tara man to have a job of this nature.

One of the nine men is Charles[1] and another is the clan leader of the Mumu clan. A third is the joint custodian with Charles of

[1] See p.11.A

A [See Category 464--Analyst]

249 472 the Ombi-Tara village savings account, and a fourth is a man who was frequently mentioned as having had rights to very large areas of land before conversion and who appears to hold a position of high status at Ombi.

The nine men had planted more cash crops before conversion on the average than the other Ombi-Tara blockholders. They had planted an average of 321 cocoa trees (compared with an average of 108 trees for the other Ombi-Tara blockholders) and 126 coffee trees (as compared with 83). The nine men included three of the four men who had planted their own bush rubber seedlings before conversion was introduced.

241 devote less time to the cultivation of the more laborious (but more
311 favoured) Colocasia taro.

During the post-eruption period there have been, as we shall
[433] see below, many pressures on the Orokaiva to reallocate their working time, by raising the standard of village building construction, by taking on outside labour to raise taxes and buy luxuries, by increasing the acreage in cash crops. In many cultures dependent on swidden agriculture these pressures have led to more slipshod methods of cultivation, or smaller plantings or shorter fallowing periods. Among the Orokaiva, the only effect so far has been, in all probability, a decline in the surpluses grown for feasts. This is a change to be discussed later and related to religious changes. In Sivepa there would clearly be a danger, if cash-cropping was expanded to the extent some administration officers would like to see, that fallowing periods in subsistence gardens would need to be shortened. There is no evidence that subsistence gardening, so far, has been affected by cash cropping, as both the acreage and the time devoted to cash crops is too small. (For details of time allocation to activities in both villages, see Table 8.)

245 The average Sivepa family, according to Rimoldi, has 62 cultivated trees of local origin from which crops are gathered in season. No corresponding figure is available for Inonda, but it would be about 30. The list of most important trees varies a little between the two districts because of differences of climate and soil.

Sivepa	Inonda
Coconut	Sago
Breadfruit (oga and sumba)	Coconut
Betelnut (areca)	Betelnut
Sago	Hauga nut (tauga)
Pandanus	Breadfruit
Tauga nut (cycas media)	Pandanus
Puga nut (terminalia okaria)	(Ajimo)
Bark cloth tree (ajimo)	
Mango	

An important difference between the resources of the two villages is that coconuts at Inonda will yield copra; hence, a copra drying house was built and this has been and can be a source
[262] of income. At Sivepa, the flesh is thinner and coconuts are grown for drinking, cooking, feeding dogs and chickens, while the nuts are also eaten regularly and form a useful source of protein. Another
249 difference is that neither betelnut nor tauga and puga do well at all in the Inonda district and quantities are negligible. The lack
276 of betelnuts is felt very strongly, as the Inonda people are as
438 A fond of chewing it as other Orokaiva. Hence, it is usually obtained

[See Cat. 116, p. 213--Analyst]

241 villages had to be abandoned at the time of the eruption and rice
177 growing was never resumed. The growing of rubber by Orokaiva in
the Northern District has a long and somewhat unhappy history which
[243] will be referred to later; at the time of the eruption, just before
the Korean War drove up the prices, the rubber trees planted by
249 the Orokaiva were hardly harvested at all; Rimoldi reports that
311 in 1963 the existing stands at Sivepa were tapped to some extent
177 and the coagulum sold to a factory at Awala. There were six tappers
in his population sample of 50, who together earned $70 in one year.
[433] When I began my field work, the tapping had ceased as the factory
[434] was no longer buying indigenously grown rubber, but a rubber
cooperative was set up early in 1967, with the encouragement of
the Department of Agriculture, in a village about one mile from
Sivepa. The Department of Agriculture was also encouraging the
people to plant superior Malayan rubber trees and two men had
planted 250 and 72 trees respectively. Rimoldi reports that
"members of the clans now represented in Sivepa and Binduta"
owned four plots ranging from less than half an acre to about
three acres in area.

Since that time, however, a new plot has been established,
four and one-half acres in size, on which theoretically seven
men were to establish rubber stands. The Malayan trees were
planted here, as well as self-sown trees from the other plots
which were dug up and replanted. These plantings occurred shortly
after Rimoldi left. If the new cooperative venture succeeds, it
is likely that the new plot--most of which still remains unplanted--
will be exploited, but people were clearly waiting to see whether
sales at attractive prices would eventuate.

245 Orokaiva coffee plantations are wholly a post-eruption
177 development, inaugurated by the Agriculture Department shortly
311 after it was set up in Popondetta and greatly strengthened by the
setting up of a coffee cooperative, first under the Higaturu Local
Government Council and later independently. First plantings in
Sivepa were before 1954, in Inonda in 1955. Rimoldi reported that
in 1964, there were 1,100 coffee trees in Sivepa, owned by five
growers. Crocombe and Hogbin reported 801 trees in Inonda in
1962, owned by three households. Since that time, Inonda has not
added to its plantings, but Sivepa, along with the whole of the
Saiho Division, has greatly increased its cash-cropping activities
[434] since the 1964 census. The number of growers has increased from
five to 14--every able-bodied man in the vigor of life has his
coffee garden from which he derives an annual income of between
$50 and $100. This increase is the result of vigorous encouragement
of plantings by the Agriculture Department, a change of ideology
under the impact of the Local Government Councils and a great
improvement in the marketing arrangements. In 1966, Sivepa coffee
was collected and promptly paid for in Garoubi village, about 15
minutes' walk from Sivepa. I did not take another coffee census

177 part of village layouts, are a blend of Papuan tradition (the Orokaiva
[351] have always been very fond of flowers and planted ornamental shrubs)
[363] and a new Australian-derived passion for military regularity. This is evident especially in the emphasis placed on building the houses in a line, and equidistant; the shrubs are also rigidly in line.

177 The changes are to some extent due to the experience of Ilimo
342 camp which is reflected in the style of Old Sivepa. The changes found in New Sivepa are due to subsequent influences, mainly that of the Local Government Council. Once village improvement became an ideologically validated objective, the way was open to the adoption of further innovations borrowed from the Kokoda district, such as the use of "timber." I did not see "timber" used East of the Sasembata district.

[192] It may well be that the increase in house size, coupled with the present need to build a large number of houses in the same year to form a major modern village, would rapidly have led to a critical shortage of sago in Sivepa if people had continued to use this material for walls. Thus, the present practice of using timber instead of sago could well have an economic explanation. Sago roofs can be built without destroying the plants, whereas plants have to be cut entirely to produce sago walls. I was not, however, given an economic explanation for the change-over to timber; I was told only that it was better-looking and provided good protection against wind and rain. But nobody would say anything against sago; sago walls are "also very good."

177 Tools and skills: Traditional agriculture has undergone considerable
241 change, as elsewhere in New Guinea, by the introduction of steel axes,
[412] bush knives, grubbers etc. Thus the preparation of the soil for gardening has been greatly facilitated. There has, however, been no change in the operations concerned with the plants themselves, planting and harvesting being done with wooden digging sticks. Many of the men have had experience in rubber plantations, with operations such as tapping; there are a few tapping chisels in the village. Training in coffee cultivation occurred after the eruption, but it was not until a few years ago that hulling machines were introduced. Every grower

177 at Sivepa has, as far as I know, only one coffee sack. The basic
245 skills needed to bring rubber and coffee to market have been mastered,
● 249 but up-to-date techniques for improving the yield of the trees have not been mastered. The difficulty, in this respect, is not purely one of communication, as men who have been employed as rubber tappers must be familiar with certain rules regarding care of the trees which are definitely not being practised. Similarly, I doubt whether one can explain failure, on the part of Sivepa growers, to prune their coffee trees by ignorance of pruning techniques. The true explanation would appear to be a lack of confidence that the rules make any difference to the yields. In Hohorita people began to prune their coffee trees when they discovered they were then easier to harvest. But the whole pattern of reasoning upon which Western horticultural practises are

177 245 249 [824] 177 335 based, is alien and seems dubious to Orokaiva. The Europeans claim that a plant needs to be looked after even if it contains no spirit; to the Orokaiva this appears absurd.

Some Orokaiva have been employed by Europeans as carpenters; these men have certain skills upon which a community draws when large community buildings (for instance, the hospital at Sasembata mission station) need to be constructed. The trained carpenter leads such enterprises in the role of expert. There was one such man in Sasembata village; he, like most others of his type, learned his skill in European employment and not in one of the small adult education ventures which the administration has sponsored from time to time (the adult education classes at Ilimo camp were probably the first of this type).

177 871 For the rest, the skills acquired by Orokaiva over the last 15 years are largely concerned not directly with village development but rather with an increase of understanding of the world outside. While before the war, only a small minority had school education, the Anglican Mission spread its operations to several new stations, including Sasembata, after the war. After the eruption, the scope of education was again greatly extended and it could be said that the eruption marked the beginning of universal school education in the majority of Orokaiva villages. The Sasembata station began to draw virtually the entire child population of the surrounding villages, and most students now follow a five or six year course. While this development had been planned ever since the war, it may be significant that regular school attendance of all the villages in the district was experienced for the first time at Ilimo, where a school was conducted for the whole evacuee child population, and adult classes as well. It is the objective of present school programmes, as far as I can see, to make the population literate and the increase of [212] literacy is a major aspect of acculturation over the period. Literacy has certainly progressed to a point where letters written in Orokaiva to any family in Sivepa can be read and understood with the help of at least a junior member of the family; and can be replied to. While 177 802 I could see no evidence that people have acquired mathematical knowledge of any sophistication, I was struck by a strong quantitative orientation. In the Orokaiva language, there are no numerals higher than 2; hence, it is the invariable practise to use English numerals when speaking [192] the Orokaiva language. The numerals are, in fact, among the main English linguistic features that have been borrowed. They are used with remarkable frequency; the number of coffee trees, the value in pounds of trade goods included in a bride price, the calculation of money prices, even the number of brothers or men who together played some role in a mythological tale (a distinctly contemporary touch, this)--all these phenomena show that "numbers" have become an integral part of Orokaiva culture. The Orokaiva use the English word "number" 177 829 for a variety of quantitative concepts, including price. Finally, one must regard as an aspect of acculturation, the introduction of many